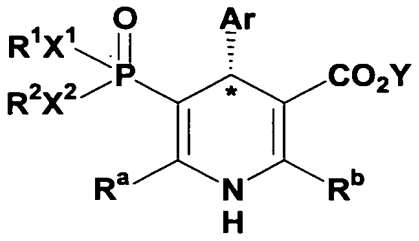
CLAIMS

1. A T-type calcium channel blocker that is optically active 1,4-dihydropyridine compound, a pharmaceutically acceptable salt thereof or a solvate thereof, of formula (1)



(1)

[wherein

R^1 and R^2 are independently of each other C_{1-6} alkyl group {the C_{1-6} alkyl group may be substituted with phenyl group (the phenyl group may be substituted with C_{1-6} alkoxy group or halogen atom), C_{2-6} alkenyl group or C_{2-6} alkynyl group (the C_{2-6} alkenyl group and C_{2-6} alkynyl group may be substituted with phenyl group (the phenyl group may be substituted with C_{1-6} alkoxy group or halogen atom))}, or

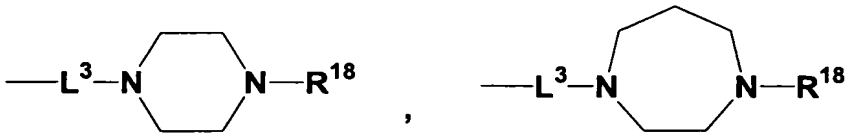
$-L^1-NR^3R^4$ {R^3 and R^4 are independently of each other C_{1-6} alkyl group (the C_{1-6} alkyl group may be substituted with phenyl group (the phenyl group may be substituted with C_{1-6} alkoxy group or halogen atom)) or phenyl group (wherein the phenyl group may be substituted with C_{1-6} alkoxy group or halogen atom), L^1 is C_{2-6} alkylene group (the C_{2-6} alkylene group may be substituted with C_{1-3} alkyl group or phenyl group (the phenyl group may be arbitrarily substituted with halogen atom, C_{1-3} alkyl group or C_{1-3} alkoxy group))}, or

R^1 and R^2 together form $-CR^5R^6-CR^7R^8-$, $-CR^5R^6-CR^7R^8-CR^9R^{10}-$ or $-CR^5R^6-CR^7R^8-CR^9R^{10}-CR^{11}R^{12}-$ (R^5 to R^{12} are independently of each other hydrogen atom or C_{1-6} alkyl group, or any two of them together with the carbon atom bonding them may form 5-, 6- or 7-membered ring);

X^1 and X^2 are independently of each other O or NR^{13} (R^{13} is hydrogen atom or C_{1-6} alkyl group);

Ar is phenyl group, pyridyl group, furyl group or 2,1,3-benzoxadiazol-4-yl group {the phenyl group, pyridyl group, furyl group and 2,1,3-benzoxadiazol-4-yl group may arbitrarily substituted with one or two substituents selected from NO_2, CF_3, Br, Cl, F, R (R is C_{1-20} alkyl group), OH, OR^{14} (R^{14} is C_{1-6} alkyl group), $OCHF_2$, $COOR^{14}$, NH_2, NHR^{14}, $NR^{14}R^{15}$ (R^{15} is C_{1-6} alkyl group), $CONH_2$, $CONHR^{14}$, $CONR^{14}R^{15}$, $COSR^{14}$, SR^{14}, $S(O)R^{14}$, $S(O)_2R^{14}$, SO_3H, SO_3R^{14}, SO_2NH_2, SO_2NHR^{14}, $SO_2NR^{14}R^{15}$, CN and

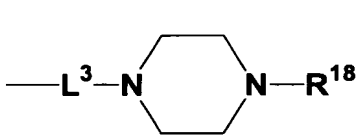
phenyloxy group};
R^a and R^b are independently of each other C_{1-6} alkyl group, $-L^2-NR^{16}R^{17}$ {R^{16} and R^{17} are independently of each other hydrogen atom, C_{1-6} alkyl group (the C_{1-6} alkyl group may be substituted with phenyl group (the phenyl group may be substituted with C_{1-6} alkoxy group or halogen atom)) or phenyl group (the phenyl group may be substituted with C_{1-6} alkoxy group or halogen atom), L^2 is C_{2-6} alkylene group (the C_{2-6} alkylene group may be arbitrarily substituted with C_{1-3} alkyl group or phenyl group (the phenyl group may be arbitrarily substituted with halogen atom, C_{1-3} alkyl group or C_{1-3} alkoxy group))}, $CH_2O-L^2-NR^{16}R^{17}$, Ar^1 (Ar^1 is phenyl group (the phenyl group may be arbitrarily substituted with halogen atom, C_{1-3} alkyl group or C_{1-3} alkoxy group)), $CH=CHAr^1$, $CH_2CH(OH)Ar^1$, CHO, CN, CH_2OH, $CHOR^{16}$, $-L^2-N(CH_2CH_2)_2NR^{16}$ or $NR^{16}R^{17}$;
Y is C_{1-20} alkyl group {the C_{1-20} alkyl group may be substituted with phenyl group (the phenyl group may be substituted with C_{1-6} alkoxy group or halogen atom), C_{2-6} alkenyl group or C_{2-6} alkynyl group (the C_{2-6} alkenyl group and C_{2-6} alkynyl group may be substituted with phenyl group (the phenyl group may be substituted with C_{1-6} alkoxy group or halogen atom))}, $-L^3-NR^{18}R^{19}$ {R^{18} and R^{19} are independently of each other C_{1-6} alkyl group (the C_{1-6} alkyl group may be substituted with phenyl group (the phenyl group may be substituted with C_{1-6} alkoxy group or halogen atom)) or phenyl group (the phenyl group may be substituted with C_{1-6} alkoxy group or halogen atom), L^3 is C_{2-6} alkylene group (the C_{2-6} alkylene group may be arbitrarily substituted with C_{1-3} alkyl group or phenyl group (the phenyl group may be arbitrarily substituted with halogen atom, C_{1-3} alkyl group or C_{1-3} alkoxy group))},



(wherein o and p are independently of each other 3 or 4, q is 1, 2 or 3), and
* is absolute configuration of R.]

2. The T-type calcium channel blocker that is optically active 1,4-dihydropyridine

compound, a pharmaceutically acceptable salt thereof or a solvate thereof, according to claim 1, wherein Y is $-L^3-NR^{18}R^{19}$ {R^{18} and R^{19} are independently of each other C_{1-6} alkyl group (the C_{1-6} alkyl group may be substituted with phenyl group (the phenyl group may be substituted with C_{1-6} alkoxy group or halogen atom)) or phenyl group (the phenyl group may be substituted with C_{1-6} alkoxy group or halogen atom), L^3 is C_{2-6} alkylene group (the C_{2-6} alkylene group may be arbitrarily substituted with C_{1-3} alkyl group or phenyl group (the phenyl group may be arbitrarily substituted with halogen atom, C_{1-3} alkyl group or C_{1-3} alkoxy group))},



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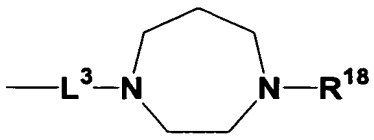

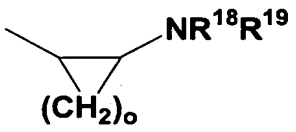

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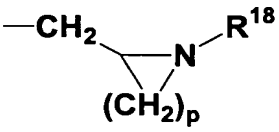

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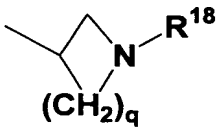

(wherein o and p are independently of each other 3 or 4, q is 1, 2 or 3), and R^a is C_{1-6} alkyl group.

3. The T-type calcium channel blocker that is optically active 1,4-dihydropyridine compound, a pharmaceutically acceptable salt thereof or a solvate thereof, according to claim 2, wherein R^b is C_{1-6} alkyl group, CN or NH_2.

4. The T-type calcium channel blocker that is optically active 1,4-dihydropyridine compound, a pharmaceutically acceptable salt thereof or a solvate thereof, according to claim 1, wherein Y is C_{1-20} alkyl group {the C_{1-20} alkyl group may be substituted with phenyl group (the phenyl group may be substituted with C_{1-6} alkoxy group or halogen atom), C_{2-6} alkenyl group or C_{2-6} alkynyl group (the C_{2-6} alkenyl group and C_{2-6} alkynyl group may be substituted with phenyl group (the phenyl group may be substituted with C_{1-6} alkoxy group or halogen atom))},
R^b is $-L^2-NR^{16}R^{17}$ {R^{16} and R^{17} are independently of each other hydrogen atom, C_{1-6} alkyl group (the C_{1-6} alkyl group may be substituted with phenyl group (the phenyl group may be substituted with C_{1-6} alkoxy group or halogen atom)) or phenyl group (the phenyl group may be substituted with C_{1-6} alkoxy group or halogen atom), L^2 is C_{2-6} alkylene group (the C_{2-6} alkylene group may be arbitrarily substituted with C_{1-3}

alkyl group or phenyl group (the phenyl group may be arbitrarily substituted with halogen atom, C_{1-3} alkyl group or C_{1-3} alkoxy group))}, CH_2O-L^2-$NR^{16}R^{17}$ or -L^2-$N(CH_2CH_2)_2NR^{16}$, and
R^a is C_{1-6} alkyl group.

5. The T-type calcium channel blocker that is optically active 1,4-dihydropyridine compound, a pharmaceutically acceptable salt thereof or a solvate thereof, according to claim 2, 3 or 4, wherein R^1 and R^2 are independently of each other C_{1-6} alkyl group {the C_{1-6} alkyl group may be substituted with phenyl group (the phenyl group may be substituted with C_{1-6} alkoxy group or halogen atom), C_{2-6} alkenyl group or C_{2-6} alkynyl group (the C_{2-6} alkenyl group and C_{2-6} alkynyl group may be substituted with phenyl group (the phenyl group may be substituted with C_{1-6} alkoxy group or halogen atom))}, or R^1 and R^2 together form -CR^5R^6-CR^7R^8-, -CR^5R^6-CR^7R^8-CR^9R^{10}- or -CR^5R^6-CR^7R^8-CR^9R^{10}-$CR^{11}R^{12}$- (R^5 to R^{12} are independently of each other hydrogen atom or C_{1-6} alkyl group, or any two of them together with the carbon atom bonding them may form 5-, 6- or 7-membered ring);
X^1 and X^2 are both O.

6. The T-type calcium channel blocker that is optically active 1,4-dihydropyridine compound, a pharmaceutically acceptable salt thereof or a solvate thereof, according to claim 5, wherein Ar is phenyl, 3-nitrophenyl, 2-nitrophenyl, 3-chlorophenyl, 2-chlorophenyl, 3-methoxyphenyl, 2-methoxyphenyl, 2-trifluoromethylphenyl, 2-trifluoromethylphenyl or 2,3-dichlorophenyl.

7. The T-type calcium channel blocker that is optically active 1,4-dihydropyridine compound, a pharmaceutically acceptable salt thereof or a solvate thereof, according to claim 6, wherein R^1 and R^2 together form -CH_2-$C(CH_3)_2$-CH_2-, X^1 and X^2 are both O, Ar is 3-nitrophenyl, R^a and R^b are both methyl, and Y is 2-[benzyl(phenyl)amino]ethyl.

8. A pharmaceutical containing the T-type calcium channel blocker according to any one of claims 1 to 7.

9. A therapeutic or preventive agent against a disease for which T-type calcium channel blocking action is effective, containing the T-type calcium channel blocker

according to any one of claims 1 to 7.

10. A therapeutic or preventive agent against hypercardia, containing the T-type calcium channel blocker according to any one of claims 1 to 7.

11. A therapeutic or preventive agent against heart failure, containing the T-type calcium channel blocker according to any one of claims 1 to 7.

12. A therapeutic or preventive agent against cardiomyopathy, containing the T-type calcium channel blocker according to any one of claims 1 to 7.

13. A therapeutic or preventive agent against atrial fibrillation, containing the T-type calcium channel blocker according to any one of claims 1 to 7.

14. A therapeutic or preventive agent against tachycardia-arrhythmia, containing the T-type calcium channel blocker according to any one of claims 1 to 7.

15. A therapeutic or preventive agent against arterial sclerosis, containing the T-type calcium channel blocker according to any one of claims 1 to 7.

16. A therapeutic or preventive agent against nephritis, containing the T-type calcium channel blocker according to any one of claims 1 to 7.

17. A therapeutic or preventive agent against nephropathy, containing the T-type calcium channel blocker according to any one of claims 1 to 7.

18. A therapeutic or preventive agent against renal disorder, containing the T-type calcium channel blocker according to any one of claims 1 to 7.

19. A therapeutic or preventive agent against renal insufficiency, containing the T-type calcium channel blocker according to any one of claims 1 to 7.

20. A therapeutic or preventive agent against edema, containing the T-type calcium channel blocker according to any one of claims 1 to 7.

21. A therapeutic or preventive agent against inflammation, containing the T-type calcium channel blocker according to any one of claims 1 to 7.

22. A therapeutic or preventive agent against hyper-aldosteronism, containing the T-type calcium channel blocker according to any one of claims 1 to 7.

23. A therapeutic or preventive agent against neurogenic pain, containing the T-type calcium channel blocker according to any one of claims 1 to 7.

24. A therapeutic or preventive agent against epilepsy, containing the T-type calcium channel blocker according to any one of claims 1 to 7.